



**COLLEGE OF ENGINEERING, SCIENCE
& TECHNOLOGY**

**SCHOOL OF AUTOMOBILE ENGINEERING AND ROAD
TRANSPORT**

Department of Transport

**Trade Diploma in Road Transport
Technology and Management**

**Programme Details
&
Unit Descriptions**

2014

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Trade Diploma in Road Transport Technology & Management

1.0 INTRODUCTION

The efficient movement of people and goods is vital to the quality of life enjoyed by society and the effective functioning of trade, the economy, and essential services are consequences of a sound transport system in any country. Thus, it is desirable that all those involved in the planning, operation and management of logistics and transport should be well qualified for their work. This also applies to people engaged in allied activities, such as logistics and transport education, consultancy and research. They all make a crucial contribution to the total transport scene.

In order to cope with the challenge of increased engineering and technology demand and in view of the growing awareness of society towards the environment, graduates with a sound scientific and technical knowledge who are also sensitive to the needs of the society and environment are the need of the hour. This program aims to produce graduates who will meet this need and will surpass the expectations of the industry, society and the country on this front. The program has been designed in such a way so as to allow the graduates develop a basic all-round knowledge in various engineering and transport fields and at the same time enable them to gain a high level of professionalism in their chosen field of engineering and transport with an insight into the engineering management principles. The program allows them to employ the principles of rational use of resources and inculcates in them, organizational discipline and basic supervisory skills which will prove beneficial to them and to the organization they would serve in, after finishing their education.

The **School of Automobile Engineering & Road Transport** is committed to provide a learning environment that helps in developing graduates who are professionally sound, ethically upright and self-motivated. The school provides the correct mix of theoretical and practical knowledge as well as research and analytical opportunities so as to encourage independent thinking and critical reasoning among students.

1.1 Rationale

The Diploma in Transport Technology and Management is a qualification designed to bridge the gap between a professional engineer and an engineering tradesman. A graduate technician will be able to apply knowledge and advanced technical skills in his/her area of expertise and generate a range of solutions to the technical problems faced in the field. The graduate should be able to take some supervisory responsibility of tradesmen and lead his team in performance of various technical tasks, generating reports and communiqués as required in the industry.

The students of these programmes are also expected to gain sufficient working knowledge of mathematics, physics, chemistry, graphic expression, computer programming and management, which would prepare them for the specific jobs in engineering.

1.2 Graduates profile:

Graduates shall be employable in technical areas where transportation decision making is required at a middle management level. With years of field experience these graduates can play leadership roles as a team leader or a line supervisor.

The successful graduate shall be able to contribute within a wide range of Transport Technology areas such as, material, design, manufacturing and management. The duties and responsibilities would include:

- Analyzing and converting complex situations into simpler routines and procedures.
- Making useful contribution on selection of technical solutions, comparison and decision making.
- Advising on technical standards and quality control requirements.
- Performing under minimal supervision and taking responsibility for other team members
- Undertaking technical diagnostic work in an objective and responsible manner and write detailed reports on its findings.

A Trade Diploma graduate may have the technician's role in employment, become a supervisor/middle manager or proceed to higher education studies to become a fully qualified professional engineer. Trade Diploma graduates from Automobile Engineering and Road

Transport also has an eligibility to directly enter into the second year of Bachelor in Engineering program offered by Fiji National University.

1.3 Program Philosophy

The philosophy of the program is to educate the students in the field of transport engineering and technology making them apply the acquired skills and knowledge in the industrial environment such as materials, design, manufacturing, maintenance and engineering management sector, thus helping the nation in its technical and economic development.

1.4 Aims and Objectives:

The aims and objectives of the program are to:

- Provide industry with adequate number of capable and trained manpower who have acquired a sound knowledge and understanding of the principles and processes of transport technology and management.
- Provide good practical input with theoretical knowledge for technological advancement of the industry/society.
- Provide a basis for further studies in the chosen field of engineering specialization.
- Develop the knowledge of the students to enable them to make a positive contribution to the standards of quality in their field of employment.
- Promote good communication skills for generating reports and communiqués.
- Develop high ethical standards and values to make the graduates good and responsible citizens.
- Provide support and cooperate with industry and relevant training agencies in the development of competency to meet their employment needs.

2.0 PROGRAMME REGULATIONS

2.1 Admission Requirements:

(a) Minimum entry requirement (MER) for this program shall be a pass in the Fiji School Leaving Certificate (12 years of education with continuous progression) or its equivalent with at least 50% marks in Mathematics, English, Physics and any one of the following subjects : Chemistry, Technical Drawing, Metal Technology or Computer Studies.

OR

(b) Holders of Certificate IV or equivalent in relevant discipline may also be admitted into the program.

OR

(c) Under exceptional circumstances mature applicants with relevant industrial experience may also be admitted.

2.2 Credit Value of Programme

The total credit value for the units in this program is 260 credits. The students should compulsorily acquire all the credits for an award for this diploma programme. Exemption may be granted to students who have cross-credited the units of OHS and/or Ethics values and Governance.

2.3 Duration of Programme

The program can be completed in five trimesters plus six months industrial attachment. The industrial experience requirement can be waived for students with adequate industrial experience. The maximum duration of the program is four years for full time students and seven years for the part time students.

2.4 Cross Crediting

Cross crediting of units shall be done as per the relevant University Academic and Student Regulations (UASR).

2.5 Award of Diploma

The general requirements for award of the qualification are laid down in the latest issue of the University Academic and Student Regulations.

3.0 PROGRAMME STRUCTURE

3.1 General

The programme is offered in five trimesters in accordance with the programme structure given in Table 1. The student will be expected to undergo an industrial attachment of six months duration in a relevant industry. The student is also expected to maintain a Work Experience Record Book (WERB) issued by the respective school during the course of the industrial attachment and submit the same to the school 4 weeks before the last date of application for graduation.

3.2 Compulsory Components

All the units are compulsory.

3.3 Optional Components

This program is meant for developing graduates with professional skills and most of the units are focused for developing such skills. Therefore in this program optional units are not being offered.

3.4 Special Requirements

Students must complete a minimum of 6 months industrial attachment during the course of study.

3.5 Delivery Mode

The programme is full-time based on 15 weeks trimesters. Intakes are usually at the beginning of each academic year and students proceed from one trimester to another until trimester five. However, depending on the demand the college may allow new enrolment of students at the beginning of each trimester.

3.6 Order of Delivery

Units are timetabled according to the chronological order of the Programme Structure given in **Table 1**. Content material instruction is delivered chronologically as itemized in the Unit Descriptors. Students who are unsuccessful in some units and need to re-sit examinations or repeat units must follow the below given guidelines

- Prerequisites must be satisfied before proceeding to next units and
- Re-sits, repeat, and supplementary assessment will be allowed as per UASR guidelines.

The final outcome for graduation will be the accumulation of 260 credit points and mandatory 6 months industrial experience as recorded in the work experience record book.

Table 1. Programme Descriptor for Trade Diploma in Road Transport Technology & Management

Code: AUT	Trade Diploma in Road Transport Technology & Management		
Year One, Trimester 1			
Unit Code	Unit Title	Pre- requisite	Credit Point
COM401	Technical Communication II	Minimum entry requirement as given in the programme document	10
MTH405	Engineering Mathematics I	Minimum entry requirement as given in the programme document	10
MEC450	Engineering Graphics	Minimum entry requirement as given in the programme document	4
PHY416/CHM406	Engineering Physics / Engineering Chemistry	Minimum entry requirement as given in the programme document	8/8
CIN445/EEE460	Introduction to Computer Programming / Introduction to Electrical and Electronics Engineering	Minimum entry requirement as given in the programme document	8/7
OHS445/ETH401	Occupational Health and Safety/Introduction to Ethics and Governance	Minimum entry requirement as given in the programme document	5/9
MEC470	Engineering Graphics Laboratory	Minimum entry requirement as given in the programme document	6
PHY470/CHM470	Engineering Physics Laboratory / Engineering Chemistry Laboratory	Minimum entry requirement as given in the programme document	2/2
CIN470/EEE470	Introduction to Computer Programming Laboratory / Electrical and Electronics Engineering Laboratory	Minimum entry requirement as given in the programme document	2/3
Year One, Trimester 2			
Unit Code	Unit Title	Pre- requisite	Credit Point
MEC451	Engineering Mechanics	Minimum entry requirement as given in the programme document	8
MTH504	Engineering Mathematics II	MTH 405	10
PHY416/CHM406	Engineering Physics / Engineering Chemistry	Minimum entry requirement as given in the programme document	8/8
CIN445/EEE460	Introduction to Computer Programming /Introduction to Electrical and Electronics Engineering	Minimum entry requirement as given in the programme document	8/7
OHS445/ETH401	Occupational Health and Safety/Introduction to Ethics and Governance	Minimum entry requirement as given in the programme document	5/9
EWP452	Engineering Workshop Practice	MEC 450	5
MEC472	Engineering Mechanics Laboratory	Minimum entry requirement as given in the programme document	2
PHY470/CHM470	Engineering Physics Lab / Engineering Chemistry Laboratory	Minimum entry requirement as given in the programme document	2/2
CIN470/EEE470	Introduction to Computer Programming Laboratory / Electrical and Electronics Engineering Laboratory	Minimum entry requirement as given in the programme document	2/3

Year One, Trimester 3			
Unit Code	Unit Title	Pre- requisite	Credit Point
AUT401	Transport Geography I	MTH 405	8
ACC401	Accounting Environment	COM401	14
AUT402	Road Traffic Law	COM401	8
AUT403	Automotive Engine Technology	PHY416	7
MTH411	Probability and Statistics	MTH405	10
AUT404	Automotive Engine Technology Laboratory	PHY470	4
Year Two, Trimester 4			
Unit Code	Unit Title	Pre- requisite	Credit Point
AUT405	Vehicle Dynamics	AUT403	7
AUT407	Transport Geography II	AUT401	10
AUT408	Transport Policy and Environment	CHM406	10
AUT409	Transport Economics	ACC401	10
AUE509	Quality Assurance and Reliability Engineering	MTH504	7
AUT406	Vehicle Dynamics Laboratory	AUT404	3
Year Two, Trimester 5			
Unit Title	Unit Code	Pre- requisite	Credit Point
AUT501	Vehicle Noise and Vibration	AUT405	7
AUT503	Traffic Collision and Investigation	AUT406	7
AUT504	Logistic and Supply Management	AUT408	7
AUT505	Traffic Control and Planning	AUT409	7
AUT506	Management for Engineers	AUT408	7
AUT507	Transport Project	AUT404	12
AUT502	Vehicle Noise and Vibration Laboratory	AUT406	4

4.0 ASSESSMENT

4.1 Assessment Philosophy

Assessment is broken down into formative and summative components. Details are expanded below.

4.2 Methods of Assessment

Formative assessment takes the form of projects and assignments, classroom exercises and laboratory practical. Summative assessment takes the form of formal tests. Theoretical units also carry a final examination. Marking weightings for the various components are detailed in each Unit Descriptor.

4.3 Criteria for Assessment

Skills assessed are: cognitive, communication and motor through tests, assignments, presentations and practical work respectively. Projects are used as a gauge to measure planning and organizational skills as well as self/collective motivation. Minimum passing requirements are:-

- Coursework 50%
- Examination 50%
- Attendance 75%

4.4 Fairness, Validity and Reliability

The programme contains mainly examinable units in order to provide fair assessment across a wide range of academic abilities. Examinable units provide a high degree of objectivity whereas the few non-examinable units provide a measure of non-quantifiable personality factors through a more subjective approach such as a student's conscientiousness, inter-relations with peers and superiors and general attitude towards work.

Each unit carries at least one summative test. Marks for these and other forms of course work are entered onto the program record spreadsheet which is submitted to the Examination Board for scrutiny. Examinable units have their question papers moderated prior to submission to the Board. The answer sheets are assessed for its correctness and consistency in marking before finalization of results. The results are later scrutinized by the Examination Board prior to submission to the Academic Board.

Definitions of Boards and other quantifiable assessment criteria and validation requirements are explained in full in the University Academic and Student Regulations.

5.0 TEACHING AND LEARNING METHODS

5.1 Introduction

The teaching methods used will consist of a variety of techniques in order to achieve the specified learning outcomes. The teaching methods used will generate a learning environment whereby the practical skills and theoretical knowledge are integrated so that the students can competently meet the requirements of their work situations.

The teaching methods will include the following:

- (a) Appropriate amount of classroom time, reference books and written resources.
- (b) A optimal combination of assignments, tutorials, quizzes and projects.
- (b) Use of computers, sensors and measuring instruments to illustrate and demonstrate the systematic representation of concepts.
- (c) Graded projects will be used to facilitate the development of independent learning skills interpersonal skills, leadership and organizational skills.

5.2 Student Centered Learning

The program lays emphasis on a student centered learning process where in all the teaching methods focus on developing an all-round graduate engineer who is competent in their profession and at the same time is sensitive to the requirements of his/her society and environment. The program helps in developing analytical skills in the students so that they are able to source information on their own, categorize, analyze and develop a range of solutions from which they can choose an optimal solution that best fits the given problem.

6.0 MONITORING, EVALUATING AND REVIEW OF PROGRAMME

6.1 Academic Board

The Academic Board composition is detailed in the University Academic and Student Regulations. The board is responsible to review, discuss and amend programme curricula in their periodic meetings.

6.2 Examination Board

The Examination Board composition is detailed in the University Academic and Student Regulations. The board reviews, discusses and if required, amends individual results by consensus at the end of every trimester.

6.3 On-going Monitoring

The Academic Board reviews programme curricula and make adjustments according to various inputs as detailed in the UASR.

6.4 External Moderation

Final stage papers may be externally moderated by experts in appropriate fields from time in accordance with UASR guidelines.